

**REMARKS**

Entry of the foregoing, reexamination and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

As correctly noted in the Office Action Summary, claims 20-38 were pending. By the present response, claims 20, 21, 22, 24, 25, 29-36 and 38 have been amended, claim 32 has been canceled, and claims 39-45 have been added. Thus, upon entry of the present response, claims 20-31 and 33-45 remain pending and await further consideration on the merits.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: page 3, lines 5-13; page 5, lines 1-8; page 13, lines 4-5, 15-18 and 23-26; and the original claims.

***CLAIM REJECTIONS UNDER 35 U.S.C. §§102/103***

Claims 20-32 stand rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,171,572 to Aozasa (hereafter "Aozasa") on the grounds set forth in paragraph 2 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

The present invention is directed to a composition having a high specific surface area, and good surface area stability, even upon exposure to high temperatures. Furthermore, compositions formed according to the present invention, when utilized, for example, as catalysts, exhibit high efficiency at low temperatures even with a low precious metal content.

A composition formed according to the principles of the present invention as set forth in amended claim 20. Amended claim 20 recites:

*20. A composition consisting essentially of zirconium oxide and at least one additive selected from oxides of praseodymium, lanthanum and neodymium, the composition having a specific surface area of at least 29 m<sup>2</sup>/g after calcination for 10 hours at 1000°C.*

Initially, it is noted that it is asserted in paragraph 2 of the Official Action that "Claims 20-27 define the product by how the product was made. Thus, claims 20-27 are product-by-process claims." This assertion is respectfully traversed. As readily apparent from claim 20, as reproduced above, claim 20 is not a product-by-process claim as alleged. Instead, claim 20 is quite clearly, and explicitly, drawn to a composition. The reference to calcination appearing in claim 20 refers to the surface area stability properties of the composition, and not the manner in which it is made. Therefore, to the extent that certain limitations appearing in claims 20-27 have not been considered as further limiting the present invention, such an interpretation is respectfully traversed. Should the position be maintained that claims 20-27 are directed to product-by-process claims, applicants respectfully request that the specific process limitations contained therein, for which no patentable weight is given, be expressly identified in any future Official Action which maintains this position.

Aozasa is directed to a zirconium-cerium composite oxide, which may optionally comprise one or more additives. However, Aozasa clearly fails to anticipate, or render obvious, the composition as set forth in amended claim 20.

As evident from the above, claim 20 is now directed to a composition consisting essentially of zirconium oxide and at least one additive selected from

oxides of praseodymium, lanthanum and neodymium. By contrast, *Aozasa* is strictly limited to a composite oxide composed of both zirconium and cerium in substantial amounts of each component. Therefore, for example, such a composite oxide, which includes amounts of ceric oxides set forth in the disclosure of *Aozasa*, clearly fails to anticipate, or suggest, the compositions set forth in amended claim 20.

Catalyst formed according to the principles of the present invention which include catalytic metals, exhibit a higher efficiency at low temperatures relative to catalytic compositions comprising cerium. See, e.g., Comparative Example 7, and Table 5 appearing in the present specification. Therefore, reconsideration and withdrawal of the rejection is respectfully requested.

Claim 32 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Aozasa* on the grounds set forth in paragraph 5 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

By the present response, claim 32 has been canceled. However, such cancellation should not be interpreted as an abandonment of the subject matter contained therein. In any event, the cancellation of claim 32 renders the above-noted grounds for rejection moot.

Claims 33-35 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Aozasa* in view of U.S. Patent Application Publication No. 2003/0224931 to Yamamoto et al. (hereafter "*Yamamoto et al.*") on the grounds set forth in paragraph 6 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

Claim 33 is directed to a method for preparing the composition of claim 20. Thus, the result of the recited method is the production of a composition which

consists essentially of zirconium oxide and at least one additive selected from oxides of praseodymium, lanthanum and neodymium.

For at least the reasons explained above, Aozasa fails to disclose any method whatsoever which would result in the production of such a composition.

*Yamamoto et al.* is cited as allegedly teaching a method of making a zirconium-cerium oxide catalyst material optionally comprising alumina, silica or titania which includes formation of an aqueous mixture of cerium nitrate and zirconium oxynitrate, adding hydrogen peroxide and ammonia, forming a precipitate, adding cationic and anionic surfactants, and calcining the resultant mixture. It is further alleged that *Yamamoto et al.* teaches decomposition of zirconium and cerium compounds upon heating, and the addition of a surfactant to form homogenous precursor, followed by calcination. It is also asserted on page 7 of the Official Action, that *Yamamoto et al.* teaches the use of a suitable surfactant to improve the diffusion properties of the additive particles. However, even if the alleged teachings of *Yamamoto et al.* were applied in the manner suggested, the claimed invention would not result. Namely, the alleged teachings of *Yamamoto et al.* fail to cure the deficiencies previously noted above in connection with the primary reference to Aozasa. Therefore, for at least this reason, the rejection should be withdrawn.

Moreover, claim 33 requires a method which includes "forming a mixture comprising compounds consisting essentially of compounds of zirconium and the at least one additive." By contrast, neither Aozasa, nor *Yamamoto et al.*, either taken alone or in combination, disclose or suggest a method which includes the step of forming such a mixture. Thus, for at least this additional reason, reconsideration and withdrawal of the rejection is respectfully requested.

**NEW CLAIMS**

By the present response, claims 39-45 have been added. Claims 39-45 depend either directly or indirectly upon claim 20. Thus, these claims are also distinguishable over the applied prior art for at least the same reasons noted above.

**CONCLUSION**

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

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